REMARKS

Claims 3, 4 and 9-14 have been canceled. Claims 1, 2, 5-8 and new Claims 15- 21 remain active in the case. Reconsideration is respectfully requested.

Claim Amendment

Claim 1 has been limited to the spacers of Claims 3 and 4 and these dependent claims have been canceled. Other claims have been amended in order to improve upon the language of the claims.

New Claims 15-21 have been added. Support for Claim 16 can be found at the bottom of page 16. New Claims 17-21 are supported by the subject matter of original Claims 9-14. None of the amendments or newly presented are believed to have introduced new matter into the case. Entry of the amendments and new claims into the record is respectfully requested.

Claim Objection

The objection raised with respect to Claims 6-12 and 14 under 37 CFR 1.75(c) is believed overcome by the amendment made to Claim 6 and by the cancellation of Claims 9-14 in favor of new Claims 16-21. Withdrawal of the objection is respectfully requested.

Claim Rejection, 35 USC 112, Second Paragraph

The rejection of Claim 3 is believed overcome by the amendment made to the same. Withdrawal of the rejection is respectfully requested.

Invention

The present invention is directed to water-insoluble, water-swellable hydrogels coated with steric or electrostatic spacers having the precoating characteristics of an Absorbancy Under Load (AUL) (0.7 psi) of at least 20 g/g, and a gel strength of at least 1,600 Pa. The steric spacers are selected from the group consisting of bentonites, zeolites, active carbons and silicas and the electrostatic spacers are cationic polymers.

Other aspects of the invention are directed to a water-absorbent that contains the water-insoluble, water-swellable hydrogel of the invention, a water-absorbent composition containing the water-insoluble, water-swellable hydrogel of the invention, a method of absorbing aqueous fluids using the water-swellable hydrogel of the invention, hygienic articles containing the water-insoluble, water-swellable hydrogel of the invention, a method of enhancing the permeability, capacity and swell rate of hygienic articles or other articles which absorb aqueous fluids and a process of for producing water-absorbent compositions.

Prior Art Rejection, 35 USC 102(a), 35 USC 103(b)

Claims 1, 3-5 and 13 stand rejected based on 35 USC 102(a) as anticipated by Dentler et al, WO 22017 (U. S. Patent 6,565,768). This ground of rejection is respectfully traversed.

The Dentler et al document is relevant to the present invention because it discloses a method of preparing water-swellable hydrophilic polymers by neutralizing an acidic hydrogel having a degree of neutralization of 0-40 % to an ultimate degree of neutralization of 60-85 mole %. The hydrogel is mixed in a mincer with a neutralizing agent comprised of a screw, a rotating blade, a restricted flow zone and a breaker plate under a power output of 1000 to 6000 Wh/m^3.

Under these conditions the hydrogel passes through a zone having an energy dissipation density ranging from 400 to 800 W/l of mixing volume, whereby the average residence time of the hydrogel in the mincer ranges from 5 to 30 seconds and the breaker plate of the device has an open area ranging from 20 to 40 %. The hydrogel product has an Absorbancy Under Load of at least 20 g/g and a Gel strength of at least 1600 Pa. The particles of the hydrogel product are coated with steric or electrostatic spacers (See pages 15 and 16 of the WO document and column 10 of the U.S. patent)

The steric spacers that are embodied in the Dentler et al disclosure are compounds that are capable of reacting with a carboxyl group of the hydrogel by a cross-linking reaction on the surface of the hydrogel particles. The spacer compounds are preferably in the form of an aqueous solution. The spacers include steric spacers and are such as di- or polyglycidyl compounds such as phosphonyl diglycidyl ether or ethylene glycol diglycidyl ether, alkoxysilyl compounds, polyaziridines, polyamines or polyamidoamines, and their reaction products with epichlorohydrin; polyols such as ethylene glycol, 1,2-propanediol, 1,4-butanediol, glycerol, di- and polyglycerol, pentaerythritol, sorbitol, the ethoxylates of the polyols and their esters with carboxylic acids or carbonic acid, ethylene carbonate, propylene carbonate, oxazolidone, bisoxazoline, polyoxazolines and di- and polyisocyanates. However, post-crosslinking agents are not disclosed in the reference. Consequently, the reference is silent as to the coating of hydrogels with steric spacers which are the named materials of bentonites, zeolites, active carbon and silicas of the present claims.

Dentler et al mentions that the hydrogels can be coated with electrostatic spacers. These spacers are defined in detail on page 16 (column 10, lines 41-62), which spacers form metal

complexes on the hydrogel particle surfaces. This metal complexation occurs by spraying the particles with solutions of carboxyl groups of the hydrogel to form complexes. However, there is no disclosure in the reference of spacer that are cationic polymers. Clearly, therefore, the reference does not anticipate the present invention as claimed in any of its several embodiments and withdrawal of the rejection is respectfully requested.

Claim 2 stands rejected based on 35 USC 103(a) as obvious over Dentler et al, WO 22017 (U. S. Patent 6,565,768) in view of Goldman et al, U. S. Patent 5,599,335 and Melius et al, U. S. Patent 5,601,542. This ground of rejection is respectfully traversed.

The Goldman et al patent discloses an absorbent material that is useful for the containment of body fluids such as urine that have at least on region containing a hydrogel-forming absorbent polymer in a concentration of about 60 to 100 % by weight that provides a gel-continuous fluid transporting zone when in a swollen state. The hydrogel-forming absorbent polymer has (a) a Saline Flow Conductivity (SFC) value of at least 30 x 10^{-7} cm^3 • sec/g, (b) a Performance Under Pressure PUP) capacity value of at least about 23 g/g under a confining pressure of 0.7 psi (5 kPa) and (c) a basis weight of at least about 10 gsm. Although the Goldman et al patent describes the factors of a hydrogel-forming absorbent polymer of present Claim 2, the chemistry, i.e., the exact structure, of these polymers is not described. Therefore, Goldman et al, is silent as to the fact that the hydrogels are coated with steric or electrostatic spacers wherein the steric spacers are selected from the group consisting of bentonites, zeolites, active carbon and silicas and cationic polymers as a type of electrostatic spacer. Accordingly, it is not seen how the water-insoluble, water-swellable hydrogel of the invention is suggested by the combination of two documents, the first of which does not show or suggest the several types

of steric spacers of the presently claimed invention, nor the claimed cationic polymer spacers, while the second reference provides no exact structural details of the absorbent polymers disclosed, let alone any discussion of the specific spacers used in the present invention and the effect these spacers have on the properties of an absorbent hydrogel polymer. Accordingly, the combined references are not believed to suggest the invention as claimed.

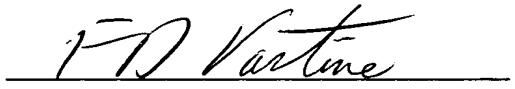
The deficiencies of the above discussed references are believed to be neither overcome or improved by the application of the Melius et al patent. Although the patent discloses an absorbent composite that is useful in the preparation of a disposable hydrogel garment, there is absolutely no teaching or suggestion of the specific, several steric spacers of the present claims, nor the cationic polymer electrostatic spacers of the present claims. Moreover, the absorbent composite includes a means for containing a superabsorbent material, as well as a superabsorbent material contained in the containment means. The superabsorbent material has a Pressure Absorbancy Index of at least 100 and a 16-hour extractable level of less than about 13 wt %, a Pressure Absorbancy Index of at least 100 and a Vortex time of at least about 45 seconds or a Pressure Absorbancy Index of at least about 110. The absorbent composite material is present in the containment means in an amount of from about 30 to 100 weight %, based on the total weight of the containment means and the superabsorbent material. From this discussion it is evident that the Melius et al patent does not overcome the deficiencies of the references above with respect to the specific spacers used to form the hydrogel absorbent of the invention. Thus, the combined three references do not suggest a hydrogel as so formulated in the present invention such that it has the properties or characteristics set forth in the present claims. Accordingly, the outstanding obviousness ground of rejection is believed obviated and

withdrawal of the rejection is respectfully requested.

It is now believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Norman F. Oblon
Attorney of Record
Registration No.: 24,618

Frederick D. Vastine, Ph.D.
Registration No.: 27,013

Customer Number
22850

TEL: 703-413-3000
FAX: 703-413-2220